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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,405	03/24/2004	Hiroyuki Umezawa	492322017000	3863

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EXAMINER

HOPKINS, ROBERT A

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/807,405

Applicant(s)

UMEZAWA ET AL.

Examiner

Robert A. Hopkins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 32-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-12,15,18-27 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 3,4,13,14,16,17 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-31 in the reply filed on 11-14-05 is acknowledged.

Claims 32-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group II, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11-14-05.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

Claims 7,18,29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 7 line 2 and claim 29 line 3 recites "the tank". There is a lack of antecedent basis for "the tank" in previous claim limitations. Correction is requested.

Claim 18 line 1 recites "the gel film". There is a lack of antecedent basis for "the gel film" in previous claim limitations. Claim 11 recites a "gel-form". Correction is requested.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,2,5-10 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kin et al(2003/0121864).

Kin et al teaches a water treatment device comprising a filter device, in turn comprising: a first filter(ultrafiltration membrane 17), immersed in a fluid containing objects of removal(deep sub-micron particles), and a second filter, formed of a gel film adsorbed onto the surface of the first filter, and a pair of electrodes(from electrocoagulation reaction tank 8; paragraph 0034 lines 17-26), removing nitrogen compounds from the fluid by an electrochemical method. Kin

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et al further teaches wherein the electrodes are installed in a first tank in which the fluid is contained, and the filter device is installed in a second tank in which the fluid that has been treated by the electrodes is contained. Kin et al further teaches wherein filtration of colloidal microparticles contained in the fluid is carried out by the filter device, and nitrogen compounds in the fluid are removed by the electrodes. Kin et al further teaches wherein the metal material forming the cathode of the electrodes is iron. Kin further teaches wherein the filter device comprises a frame, the first filter having its periphery supported by the frame, and the second filter adsorbed onto the surface of the first filter. Kin further teaches wherein the objects of removal comprise a CMP slurry(paragraph 0001). Kin further teaches wherein the fluid is a solution containing indium or an indium compound.

Examiner notes that although a second filter formed of a gel film is not explicitly taught by Kin et al, the fluid is a wastewater from a CMP process which inherently includes a colloidal solution containing objects of removal. Examiner also notes that since the fluid is a wastewater from a CMP process, the electrodes of the electrocoagulation reaction tank (8) are capable of removing nitrogen compounds from the CMP fluid.

Claims 11,12,15,18-20 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kin et al(2003/0121864).

Kin et al teaches a water treatment method, wherein microparticle components of objects of removal are removed by filtering a fluid through a gel-form second filter formed on the surface of a first filter(ultrafiltration membrane

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17), and nitride compounds contained in the fluid are removed by an electrochemical method(8). Kin et al further teaches wherein the microparticle compounds are removed after treating the nitrogen compounds. Kin et al further teaches wherein in the electrochemical method(electrocoagulation reaction tank 8), a pair of electrodes is immersed in the fluid and then electricity is applied across the electrodes to treat the nitrogen compounds. Kin further teaches wherein the objects of removal comprise a CMP slurry(paragraph 0001). Kin further teaches wherein the fluid is a solution containing indium or an indium compound.

Examiner notes that although a second filter formed of a gel film is not explicitly taught by Kin et al, the fluid is a wastewater from a CMP process which inherently includes a colloidal solution containing objects of removal. Examiner also notes that since the fluid is a wastewater from a CMP process, the electrodes of the electrocoagulation reaction tank (8) are capable of removing nitrogen compounds from the CMP fluid.

Claims 21,23-27,29-31 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kin et al(2003/0121864).

Kin et al teaches a water treatment device comprising an electrode(within electrocoagulation reaction tank 8), containing a metal(iron) from which eluted coagulating ions(ferric hydroxide floccules) that congeal with objects of removal contained in a fluid, and a filter device(ultrafiltration membrane 17), filtering the coagulated objects of removal in the fluid. Kin et al further teaches a first filter(17), immersed in a fluid containing objects of removal, and a second filter,

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formed of a gel film adsorbed onto the surface of the first filter. Kin et al further teaches wherein the gel film is formed from coagulates of the objects of removal. Kin et al further teaches wherein iron is formed as a material of the electrode. Kin et al further teaches wherein the electrode is installed in a first tank in which the fluid is contained, and the filter device is installed in a second tank in which the fluid that has been treated by the electrodes is contained. Kin further teaches wherein the filter device comprises a frame, the first filter having its periphery supported by the frame, and the second filter adsorbed onto the surface of the first filter. Kin et al further teaches wherein nitrogen compounds contained in the fluid are removed by electrochemical actions of the electrode.

Claims 22,23-27,29-31 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kin et al(2003/0121864).

Kin et al teaches a water treatment device comprising an electrode, which, by the elution of coagulating ions that congeal with objects of removal, forms coagulates(ferric hydroxide floccules) that are greater in diameter than the objects of removal, and a filter device(ultrafiltration membrane 17), filtering the coagulates. Kin et al further teaches a first filter(17), immersed in a fluid containing objects of removal, and a second filter, formed of a gel film adsorbed onto the surface of the first filter. Kin et al further teaches wherein the gel film is formed from coagulates of the objects of removal. Kin et al further teaches wherein iron is formed as a material of the electrode. Kin et al further teaches wherein the electrode is installed in a first tank in which the fluid is contained, and the filter device is installed in a second tank in which the fluid that has been

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treated by the electrodes is contained. Kin further teaches wherein the filter device comprises a frame, the first filter having its periphery supported by the frame, and the second filter adsorbed onto the surface of the first filter. Kin et al further teaches wherein nitrogen compounds contained in the fluid are removed by electrochemical actions of the electrode.

Allowable Subject Matter

Claims 3,4,13,14,16,17,28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 3 recites "wherein the filter device and the electrodes are installed in the same tank". Kin et al teaches the filter device and electrodes in separate tanks. It would not have been obvious to someone of ordinary skill in the art to provide a filter device and electrodes in the same tank because Kin et al does not suggest such a modification.

Claim 4 recites "wherein the filter device is installed in a first tank in which the fluid is contained, and the electrodes are installed in a second tank in which the fluid that has been treated by the filter device is contained". Kin et al teaches electrodes before a filter device. It would not have been obvious to someone of ordinary skill in the art to provide the filter device which is installed in a first tank in which the fluid is contained, and the electrodes are installed in a second tank in which the fluid that has been treated by the filter device is contained because Kin et al does not suggest such a modification.

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Claim 13 recites "wherein the nitrogen compounds are treated after removing the microparticle components". Kin et al teaches treating the nitrogen compounds before the microparticle components. It would not have been obvious to someone of ordinary skill in the art to provide a step of wherein the nitrogen compounds are treated after removing the microparticle components because Kin et al does not suggest such a modification.

Claim 14 recites "wherein the microparticle components are removed at the same time as treating the nitrogen compounds". Kin et al teaches treating the nitrogen compounds before the microparticle components. It would not have been obvious to someone of ordinary skill in the art to provide a step of wherein the nitrogen compounds are treated after removing the microparticle components because Kin et al does not suggest such a modification.

Claim 16 recites "wherein the nitrogen compounds are treated by the electrochemical method after adding halogen ions or a compound containing a halogen element to the fluid". Kin et al teaches adding hydrogen peroxide to the fluid. It would not have been obvious to someone of ordinary skill in the art to provide a step of after adding halogen ions or a compound containing a halogen element to the fluid because Kin et al does not suggest such a modification.

Claim 28 recites "wherein the filter device and the electrode are installed in the same tank". Kin et al teaches electrodes before a filter device. It would not have been obvious to someone of ordinary skill in the art to provide the filter device and the electrode installed in the same tank because Kin et al does not suggest such a modification.

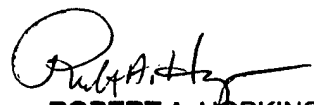
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Friday, 7am-4pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rah
December 14, 2005


ROBERT A. HOPKINS
PRIMARY EXAMINER
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